Water Operations Summary: Gaming Exercise

Scenario #:1A			Target Year: 4
Possible Water Supply Measures	Details	EWA/ Users Division	How to Model How to Game
Interim South Delta Program - 8.5 kcfs	8.5 kcfs	Users below E/I EWA above E/I	Operate as reduced Project constraints. EWA gets water through contract (see below)
JPOD. No individual State/ Federal sublimits	No state or federal sublimits apply	Projects below E/I. EWA above E/I	Operate as reduced Project constraints. EWA gets water through contract (see below)
Allow E/I variances			EWA authority to propose variences. In keeping with desire to maximize EWA assets, bias should be toward variences.
Allow in-Delta AFRP variences			Decision of DNCT to propose variences. In keeping with desire to maximize EWA assets, bias should be toward variences
Kern Water Bank	300 kaf storage. 20 kaf/month in. 10 kaf/month out.	EWA	Do not model. Operate by hand in game.
Gravelly Ford Groundwater	200 kaf storage? 20 kaf/month in. 10 kaf/month out.	Projects/ EWA split	Operate Project share in model. Operate EWA share by hand.
Shasta Dam Expansion	290 kaf storage	Projects/ EWA split	Operate Project share in model. Operate EWA share by hand.

Possible Water Supply Measures	Details	EWA/ Users Division	How to Model How to Game
Delta Island Storage	240 kaf storage. 120 kaf *2 islands	Projects/ EWA split	One island controlled by Projects. Model according to Delta Wetlands rules. One island controlled by EWA and connected to Clifton Court via a 2 way 2 kcfs pipe. Can fill from Clifton Court at 2 kcfs using unused Project rights, plus 2 kcfs when Delta out of balance. Operate EWA share by hand.
ET reductions on Delta storage islands	30 kaf/year average	Projects/ EWA split	Operate by hand in game.
Semitropic high priority storage	200 kaf storage	EWA	Operate by hand in game
SOD water purchase options	100 kaf. Usable 3X every 10 years	EWA	Operate by hand in game
NOD water purchase options	100 kaf. Usable every year.	EWA	Operate by hand in game
Spot Purchases	Max of 200 kaf per year. Limited by EWA funds.	EWA	Operate by hand in game
Demand shifting	100 kaf. Short term storage lease in San Luis.	EWA	Operate by hand in game
Access Surplus Capacity		EWA	Operate by hand in game
Urban efficiency purchase	15 kaf/yr from 500 ktoilet replacements	EWA	Operate by hand in game

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Initial Conditions

Assume that:

- o All EWA storage is 50% full at the beginning of the game.
- o EWA is funded at the initial level only (e.g., $30 million)

EWA Fiscal Budget

All capital costs (e.g., facilities) and recurring costs (e.g., routine option costs) are outside the game. Discretionary expenditures will be dealt with within the game. Discretionary expenditures are: (1) cost of deposits and withdrawals from storage; (2) cost to call options; (3) cost to purchase water on the spot market. Related expenditures such as conveyance cost and power costs will not be dealt with yet. EWA may build up its fiscal reserves by selling or leasing its rights to water or facilities.

Assumed prices:

All purchases	$100/af
Sales by EWA	$100/af
Kern Water Bank deposit	?
Kern Water Bank withdrawal	?
Semitropic deposit	?
Semitropic withdrawal	?
MWD delivery shift	
fast payback	$100/af
delayed payback	$1000/af

EWA budget for purchases: $30 million initial + $30 million per year. Unused expenditures may be accumulated for use in later years. (This number was derived using some basic assumptions about costs and the frequency of use for various options).

Modeling Basis

Modeling will be based upon a combination of pre existing policy, new prescriptive rules from the bio team (no such changes are assumed), new facilities, new actions, etc. Based upon the matrix above, the modeling upon which the game would be founded would be run with the following assumptions:

- o 1995 Level of Development?
- o Accord + VAMP
- o All AFRP
- o Trinity
- o Interim South Delta Improvements (8.5 kcfs)

- o Unlimited JPOD
- o New in-Delta storage (120 kaf)
- o Gravelly Ford storage (100 kaf)
- o Enlarged Shasta (145 kaf)

Water Supply Evaluation

The results from the modeling basis will roughly represent actual estimated Project deliveries.

Game Rules

- o EWA has the right to carry debt and to use Project facilities, provided it can assure no harm, unless arrangements for compensation are agreed to in advance. Thus, the EWA may borrow against future water supplies, may shift Project storage from upstream storage to downstream storage, etc., provided that it can make the Project's whole with high probability.
- o Unless otherwise specified, EWA has the low priority access to Project facilities.
- o EWA receives its annual income at the beginning of each water year. EWA may borrow up to one year of future income (e.g., an additional $30 million) at an interest rate of 8% per year.

Shifting to Other Target Years

A shift from Target Year 4 to earlier years will result in the loss of Shasta storage, Gravelly Ford storage, and Delta island storage. Additional purchases might be incorporated to compensate, if deemed feasible.

A shift from Target Year 4 to later years might result in the inclusion of the full South Delta Program (10.3 kcfs), additional efficiency and reclamation purchases, additional groundwater storage projects, and (over time) additional surface storage projects.